Method And Apparatus For Using Global Snooping To Provide Cache Coherence To Distributed Computer Nodes In A Single Coherent System

Abstract of the Disclosure

A method and apparatus for providing cache coherence in a multiprocessor system which is configured into two or more nodes with memory local to each node and a tag and address crossbar system and a data crossbar system which interconnects all nodes. The disclosure is applicable to multiprocessor computer systems which utilize system memory distributed over more than one node and snooping of data states in each node which utilizes memory local to that node. Global snooping is used to provide a single point of serialization of data tags. A central crossbar controller examines cache state tags of a given address line for all nodes simultaneously and issues an appropriate reply back to a node requesting data while generating other data requests to any other node in the system for the purpose of maintaining cache coherence and supplying the requested data. The system utilizes memory local to each node by dividing such memory into local and remote categories which are mutually exclusive for any given cache line. The disclosure provides support for a third level remote cache for each node.